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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,950	06/10/2005	Jan Wietze Huisman	294-212 PCT/US	5540

23869 7590 03/10/2009
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SYOSSET, NY 11791

EXAMINER

HAUTH, GALEN H

ART UNIT	PAPER NUMBER
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1791

MAIL DATE	DELIVERY MODE
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03/10/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/529,950	Applicant(s) HUISMAN, JAN WIETZE	
	Examiner GALEN HAUTH	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Acknowledgment is made to applicant's amendment of claims 10 and 15 and the addition of claim 17. No new matter has been added. The rejection of claim 15 under 35 USC 112 has been withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

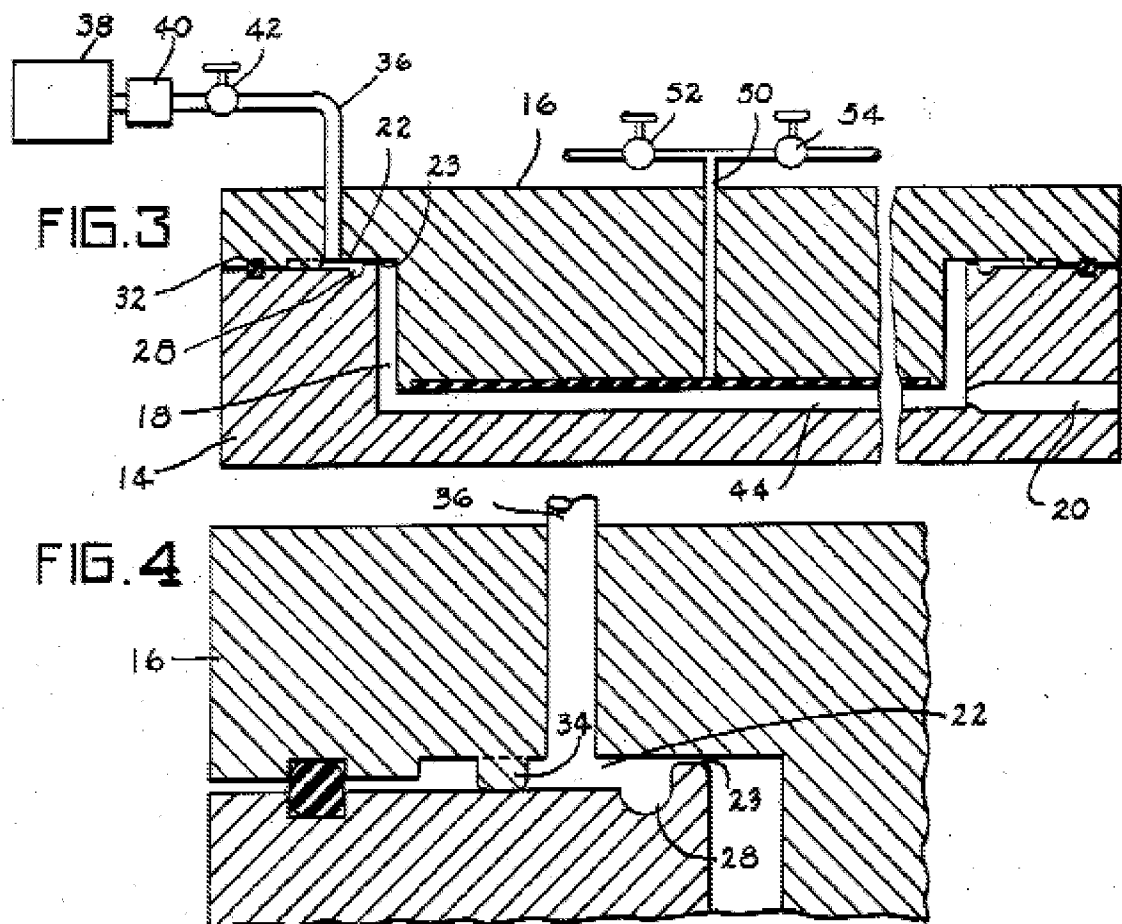
4. Claims 10-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arentsen et al. (PN 6251318) in view of Slaats et al. (PN 3970732).

a. Arentsen teaches a method for manufacturing biodegradable foam products by injecting natural polymers into a mold, heating the mold and polymer to bake the article (abstract). Arentsen teaches that moisture in the material acts as a blowing agent which is activated by the heat of the mold (col 5 ln 30-35).

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Arentsen teaches that the mold contains multiple deaeration channels which can be controlled by a pressure release valve (col 10 ln 60-66). Arentsen fails to teach the application of an overdose space in communication with the deaeration channel into which mass flows.

b. Slaats teaches a method for molding a foamed article in which a foaming material is introduced into a reduced pressure mold cavity which causes the blowing agent to activate and the foam to fill the cavity (abstract). The method results in a work piece that can be formed extremely rapidly and will completely fill the mold cavity without voids while the density of the molded article will be extremely uniform and can be controlled (col 5 ln 11-16). The method teaches using reduced pressure to vaporize the blowing agent at a lower temperature to prevent warp and deformation (col 5 ln 17-21). After foaming the article is heated to completely cure it (col 5 ln 39-42). The mold design of Slaats, shown below, teaches incorporating a vacuum pump (38) connected to a deaeration channel (36) with an overdose recess (28) to contain excess material flashed in the mold.



The flow of material into the recess (28) is controlled by a gap (23). The pressure in the deaeration channel (36), gap (28), and mold (44) is controlled by a valve (42). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the molding method of Arentsen the reduced pressure molding method of Slaats by adding to the deaeration channels of Arentsen overdose recesses and vacuum pumps to improve the rate of foaming while reducing the deformation and warping of the article and maintaining uniformity by reducing the temperature at which the blowing agent activates. In addition the sub-atmospheric molding method of Arentsen insures

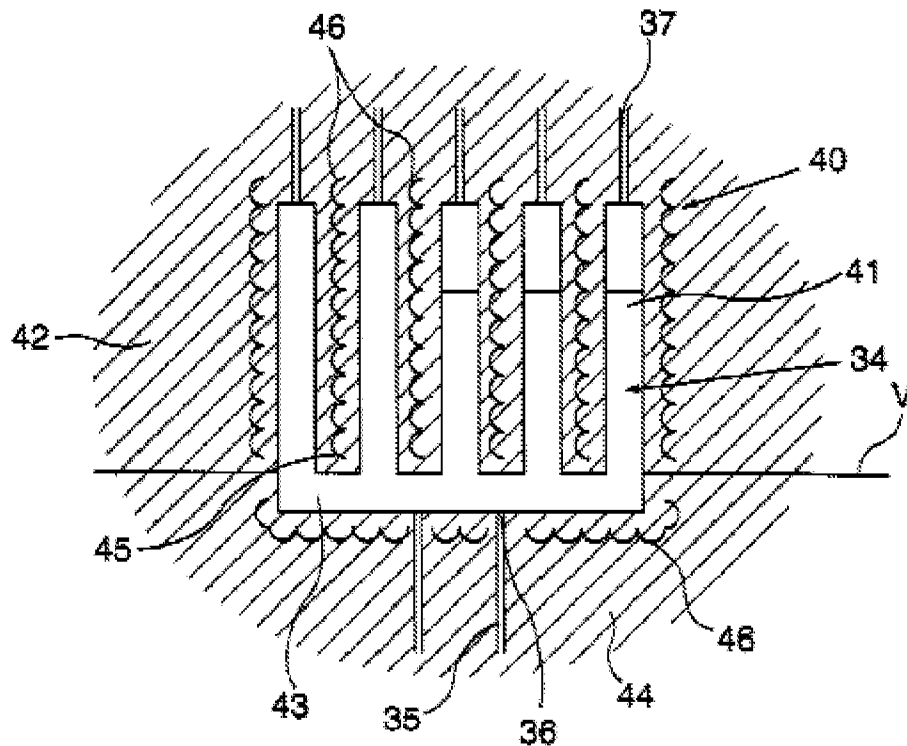
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that the principal components of the molding material are completely and intimately admixed (col 5 ln 5-10).

c. With regards to claim 11, the mold taught by Slaats above has a vacuum pump (38) which reduces the pressure in the deaeration channel (36), gap (28), and mold (44). The method teaches using reduced pressure to vaporize the blowing agent at a lower temperature to prevent warp and deformation (col 5 ln 17-21 of Slaats).

d. With regards to claim 12, the method taught by Slaats involves forming the foam extremely rapidly (col 5 ln 11-12) without the addition of a heat source, although heat may be added after foaming (col 39-42). Without a heat source this requires the pressure to be regulated such that the blowing agent foams immediately at a temperature close to or below the temperature of the mass inside the mold cavity.

e. With regards to claims 13 and 14, the mold taught by Arentsen comprises multiple deaeration channels (37) as seen in the figure below.



It would have been obvious to one of ordinary skill in the art at the time the invention was made according to Arentsen in view of Slaats to incorporate a overdose space to correspond to each deaeration channel. Due to the location of the deaeration channels throughout the mold the rate of flow and pressure of material in each deaeration channel would be different, because each is not the same distance from the injection port of the material.

f. With regards to claim 16, Slaats teaches that the material which flows into the overdose space is completely cured (col 5 ln 33-38). Arentsen teaches that the article is cured at a point in which there is cross-linking of the natural polymers (abstract).

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5. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arentsen et al. (PN 6251318) in view of Slaats et al. (PN 3970732) as applied to claim 10 above, and further in view of Pontiff et al. (PN 5059376).

a. Arentsen in view of Slaats teaches using a vacuum pump which removes air from the mold cavity. Arentsen in view of Slaats does not teach that the blowing agent is retrieved from the air removed from the cavity and recycled.

b. Pontiff teaches that air passed through foam containing blowing agent is recycled and recovered from the air (col 6 ln 18-23). It would have been obvious to one of ordinary skill in the art at the time the invention was made to introduce a raw material recycle stream for recycling the blowing agent, because this would provide a more efficient process with a decrease in materials lost to the atmosphere reducing the cost of the process.

Response to Arguments

6. Applicant's arguments filed 12/15/2008 have been fully considered but they are not persuasive.

a. With regards to the rejection of claim 10, Applicant's argue that Slaats does not disclose reducing the pressure once the mold is substantially filled, having the mass flow into an overdose space while a blowing agent is activated, and that the density is controlled by regulating the pressure of the deaeration channel. However, Slaats discloses reducing the pressure once the molding material has been injected (col 4 ln 64-67, the cavity is evacuated after material is supplied thereto). Slaats discloses that the rapid foaming of the material

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results in the components and material being completely and intimately mixed (col 5 ln 8-10) and therefor a blowing agent that is mixed into the foam would be present in the portion of the foam that enters the overdose space. The blowing agent would also be activated as the reduced pressure of the cavity is also the reduced pressure of the overdose space given that they are in fluid communication. Slaats discloses control of the suction in the channel and chamber through the use of a control valve (col 3 ln 51-54), and thus the regulation of the pressure in the channel is controlled. The argument that Slaats does not teach using this pressure regulation to control the density of the foam as recited in claim 10 is invalid as claim 10 as currently amended makes no requirement for the control of the density of the foam. Regardless of the requirement, the pressure present in a foaming process is a factor in determining the density of the final product just as temperature and volume are determining factors as well. Therefor a regulation and control of a process variable acts to regulate and control other inter related process variables.

b. With regards to the rejection of claim 15, Pontiff teaches the recycling of air used for foaming and the recovery of the blowing agent from the recycled air (col 6 ln 18-23). Pontiff is used in combination with Arentsen and Slaats to show that it was known in the art at the time the invention was made to recover and recycle the blowing agent from air used in foaming processes.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GALEN HAUTH whose telephone number is (571)270-5516. The examiner can normally be reached on Monday to Thursday 8:30am-5:00pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571)272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GHH/

/Christina Johnson/
Supervisory Patent Examiner, Art Unit 1791